

# Burnaby Laboratory

## QUALITY MANAGEMENT

All CFIA laboratories have demonstrated conformance to ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*. The Standards Council of Canada evaluates our laboratories against this international standard, as a formal verification of the CFIA's capability to produce accurate and reliable results, within our accredited scope of testing. The results are supported by the development, validation and implementation of scientific methods, conducted by highly qualified personnel, using reliable products, services, and equipment, in a quality controlled environment. Participation in international proficiency testing programs further demonstrates that our testing is comparable to laboratories across Canada and around the world.



## FOR FURTHER INFORMATION

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Safeguarding with Science



## CANADIAN FOOD INSPECTION AGENCY

The Canadian Food Inspection Agency (CFIA) is responsible for delivering federally mandated programs for food inspection, plant and animal health. The Agency relies on high-quality, timely and relevant science as the basis of its program design and regulatory decision-making. Scientific activities inform the Agency's understanding of risks, provide evidence for developing mitigation measures, and confirm the effectiveness of these measures.

CFIA scientific activities include laboratory testing, research, surveillance, test method development, risk assessments and expert scientific advice. Agency scientists maintain strong partnerships with universities, industry, and federal, provincial and international counterparts to effectively carry out the CFIA's mandate.

## THE BURNABY LABORATORY

Located on Canada's west coast, the Burnaby Laboratory is ideally located near Canada's largest port. As such, its food safety testing activities are greatly influenced by the import and export of food products. While the laboratory provides testing services for all food commodities, testing support for British Columbia's renowned shellfish commodity is a specialisation of the Burnaby Laboratory. In addition to regulatory testing activities, the Burnaby Laboratory conducts applied research through the development, validation and verification of new analytical methods.

## WHAT WE DO

### Diagnostic testing

- Post-import and pre-export testing of food products
- Survey foods to identify specific additives, contaminants or toxins
- Annual food safety monitoring programs
- Foodborne illness outbreak investigations
- Consumer complaint investigations
- Environmental monitoring of shellfish growing areas

### Support services

- Applied research that looks at emerging issues in food safety, and the development of fast and sensitive diagnostic test methods.
- Provide advice to operational inspection staff at the CFIA, regulated parties and other stakeholders.

### Microbiology

- With over 35 testing methods for microbiology, the Laboratory provides regulatory testing of food and environmental samples for a vast array of pathogens. The Burnaby Laboratory is a key shellfish testing laboratory for *Vibrio*, a marine pathogen that can cause severe illness.

### Virology

- Working in partnership with the CFIA's Saint-Hyacinthe Laboratory, which is the National Reference Centre for Food Virology, the Burnaby Laboratory is a satellite laboratory that also offers testing for foodborne viral pathogens, such as *norovirus* and hepatitis A.

### Chemistry

- With over 25 chemistry testing methods, the laboratory provides regulatory testing of food and environmental samples in the areas of natural toxins (mycotoxins and marine toxins), allergens and histamines.
- The scientists at the Burnaby Laboratory have over 30 years' experience in testing foods for sulphites, histamines and biogenic amines. It is the only CFIA expert lab for these analyses.

## SCIENTIFIC TECHNIQUES

### Ultra-performance liquid chromatography with tandem mass spectrometry (UPLC MS/MS)

- This widely used analytical technique can determine compounds such as marine toxins, mycotoxins, additives and contaminants with high molecular specificity at trace levels.

### High performance liquid chromatography with post column oxidation (HPLC PCOX)

- Using liquid chromatography (to separate a material for molecular analysis), toxins are separated then undergo a secondary reaction which enhances detection by fluorescence.

### Enzyme-linked immunosorbent assay (ELISA)

- ELISA determines the presence of a particular substance (e.g. food allergens, toxins, or pathogens) using antibodies that bind to specific target protein(s). A subsequent reaction producing a detectable signal such as colour change shows the presence of the target substance. The strength of the signal gives an indication of the amount present in the sample.

### Polymerase chain reaction (PCR) assay

- PCR assays detect pathogens in food samples by targeting nucleic acid (DNA or RNA) that is specific to the pathogen of interest.

### Whole genome sequence (WGS) analysis

- This technology creates capacity for detailed characterization of isolated food pathogens for research and outbreak investigations.